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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,116	07/02/2003	Kaoru Matsumoto	051319/0036	3910
29619	7590	07/26/2005	EXAMINER	
SCHULTE ROTH & ZABEL LLP ATTN: JOEL E. LUTZKER 919 THIRD AVENUE NEW YORK, NY 10022			SAYOC, EMMANUEL	
			ART UNIT	PAPER NUMBER
			3746	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/612,116

Applicant(s)

MATSUMOTO ET AL.

Examiner

Emmanuel Sayoc

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/30/04, 12/11/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: attachment drawings.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "rotation shaft of each of the first and second ventilators are positioned axially in the same line," claim 2 lines 4 and 5, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Figure 6 is objected to for not showing curves 2, 3, and 4.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Applicant is instructed to provide flow arrows to clarify where the fluid enters, where it passes, and where it exits (see objections to the specifications below).

### ***Specification***

2. The disclosure is objected to because of the following informalities. In paragraph 27, the specification states that the ventilation blade surfaces of fan motors I and II are in the same direction... the forward (exhaust) direction. Where is the exhaust direction? In the same paragraph the specification states that the fan motor I performs regular ventilation from the rear of the rear blade surface, and II performs regular ventilation from the front blade surface. Applicant is instructed to clarify what is meant here. The examiner believes that there are two fan motor assemblies positioned in parallel, fan shafts rotate in the same direction, and flow is generated along the longitudinal axis of the impellers. The flow generated in fan I is opposite to the flow generated in fan II because the fans have impellers of opposite pitch. If this is the case however, how are the blade surfaces in both fans in the same direction?

In paragraphs 38 and 41, the applicant is instructed to clarify where the intake opening, exhaust opening, center left, center right, the front side of the blades, and the rear side of the blades. Applicant is instructed to be more definitive in the description of how and where flow is induced. The impellers shown in Figures 3 and 4 obviously induce axial flow, yet it is evident that radial flow, line *beta* is generated (paragraph 38

and Figure 1). Using axial flow impellers to generate the radial beta flow may be induced by housing constrictions. Although possible this seems to produce inefficient flow. Applicant is instructed to clarify how there is a second beta flow below the fan motors (see Figure 1). Finally is there external fluid flow entering axially relative to fan I and exiting axially relative to fan II? As stated above, flow arrows are recommended.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-5, 7, and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 4, it is unclear how at least one blade with a front surface faces the air intake opening side. The specification describes a suction air vent (1a) which is on a periphery of the impeller (10). Similarly it is unclear how at least one blade with a front surface faces the air exhaust opening side.

In lines 8-10, the phrase "the first ventilator performs ventilation from a rear surface of the at least one blade, and the second ventilator performs ventilation from the front surface of the at least one blade is ambiguous. To advance prosecution, the examiner interprets this to mean that the first ventilator induces ventilation flow

originating from a rear side of the first ventilator fan blade, and the second ventilator induces ventilation flow originating from a front side of the second ventilator fan blade

In claim 7, it is unclear how a front side of the at least one blade of the first ventilator faces in an opposite direction from a front side of the at least one blade of the second ventilator. The ventilators are shown in Figure 1 adjacent to each other in a parallel configuration.

Claim 8 recites the limitation "the casing" in 2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4, and 5 rejected under 35 U.S.C. 102(b) as being anticipated by Schuette et al. (U.S. 4,098,008).

In Figure 1 Schuette et al. teaches a fan ventilation apparatus usable for series ventilation, which comprises a casing (31), and a first ventilator (45), mounted on an air intake opening side of the casing (see intake compartment, examiner's marked up Figure 1), an impeller having at least one blade (shown not enumerated) with a front surface facing the air intake opening side (front as referenced in the examiner's marked up Figure 1). The apparatus also includes a second ventilator (47), mounted on an air

exhaust opening side of the casing (see exhaust compartment, examiner's marked up Figure 1), having at least one blade (shown not enumerated) with a front surface facing the air exhaust opening side. The first (45) and second (47) ventilator shaft and impellers rotate in the same direction. The first ventilator (45) induces ventilation flow originating from a rear side of the first ventilator fan blade, and the second ventilator (47) induces ventilation flow originating from a front side of the second ventilator fan blade (see examiner's marked up Figure 1).

The first and second ventilators each further comprise a rotation shaft (50, each ventilator has a corresponding shaft section divided by supports 51), around which the at least one blade rotates, and further wherein the rotation shaft of each of the first and second ventilators are positioned axially in the same line.

7. Claim 6 rejected under 35 U.S.C. 102(b) as being anticipated by Davis (U.S. 3,387,769).

Davis in Figure 1 teaches a multistage turbomachine, applied as a multistage compressor, with two rotary impeller compressors (1, 6). These compressors (1a,b) constitute first and second ventilation fans respectively. They are connected in series, and they ventilate fluid along the same fluid line in the same direction. The second compressor (6) has at least one blade fewer than the first compressor (1), as shown.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuette et al., as applied to claim 1, and in view of Cobb (U.S. 1,968,874) and Watanabe et al. (U.S. 6,158,985).

Schuette et al. set forth a device as described above, which is substantially analogous to the claimed invention. The Schuette et al. device differs from the claimed invention in that there is no teaching of, the apparatus further comprising at least one rib



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attached to the casing, a motor base fixed to the at least one rib, a bearing support, having a tubular shape and anchored to the motor base, at least one bearing supported by the bearing support, and a rotation shaft supported by an inner circumference of the at least one bearing.

Schuette et al. teaches a dry kiln device with a plurality of fans driven by a single motor. In column 1 lines 24-35, and column 4 lines 51-64, it is evident that the device particularly pays attention to flow direction and level to enhance overall drying given different situations in the kiln. Within the art plural motors driven by individual motors with individual and relative control, was well known in the art, as evidenced by the U.S. Patent class 417, subclasses 4 and 5. This is also known within the dry kiln art. Cobb in Figure 1 teaches a dry kiln apparatus analogous to Schuette et al. device, and the claimed invention, where a plurality of fans (14) are driven individually by their own respective motors (15). This individual control and drive is particularly advantageous for providing variable control for fans where the demand for power, or in this case drying, is not always constant or uniform across the plurality of fans, as is the case with Schuette et al. Furthermore the plurality of drive motors ensures stability in that the whole drying system does not come to a halt when the system motor is inadvertently shut down due to failure of maintenance. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Schuette et al. device by, incorporating individual motor drive, as taught by Cobb, in order to advantageously enhance and suit the drying according to the varied stages of drying across the kiln. Cobb does not provide any details as to the structural details of the fan (14). It would

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have been obvious to utilize any suitable fan with advantageous features. Watanabe et al. in Figures 1-3, teach an air fan, usable in a dry kiln application with at least one rib (31a,b,c) attached to a casing (1), a motor base (45) fixed to the at least one rib (31a,b,c), a bearing support (39), having a tubular shape and anchored to the motor base (45), at least one bearing (35) supported by the bearing support (39), and a rotation shaft (5) supported by an inner circumference of the at least one bearing (35). As stated in the abstract the device is particularly advantageous for its waterproof and durability characteristics, and its simplified structure. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to further modify the Schuette et al., as modified by Cobb, device by incorporating the waterproof and durable fan, as taught by Watanabe et al., in order to advantageously enhance the systems durability in a humid drying environment, and design simplicity.

11. Claims 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. (U.S. 5,980,218) and Davis.

In Figure 3 Takahashi et al. teach a multistage compressor which structurally reads upon the claimed fan ventilation apparatus. The compressor comprises a first rotary impeller stage (1a), which constitutes a first fan ventilator, having an impeller (shown not enumerated) and at least one blade (shown not enumerated). The compressor also includes a second rotary impeller stage (1b), which constitutes a second fan ventilator having an impeller (shown not enumerated) and at least one blade

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(shown not enumerated). The ventilators are attached to one another in series (see fluid circuit Figure 1) such that they ventilate fluid along the same fluid line in the same direction (see Figure 1).

The Takahashi et al. device differs from the claimed invention in that there is no explicit teaching of the second ventilator having at least one blade fewer than the first ventilator. Davis in Figure 1, teaches a multistage turbomachine, applied as a multistage compressor, with two rotary impeller compressors (1, 6), which constitute ventilation fans; connected in series, and where the second compressor (6) has at least one blade fewer than the first compressor (1). It was well known in the art of pumping that induced fluid flow is a function of impeller speed and the number of impeller blades. As is evident from the Davis reference, the high-speed compressor (6) requires fewer blades than low speed compressor (1). It would have been obvious to vary the number of impeller blades to vary the flow rate, and therefore induce precise pressure through the compressor. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Takahashi et al. device by, employing fewer blades in the second stage compressor, as taught by Davis, in order to advantageously vary flow through the fluid circuit to obtain precise pressure levels through the compressor stages for optimum performance.

In Takahashi et al., a front side (left side of Figure 3) of the at least one blade of the first ventilator (1a) faces in an opposite direction from a front side (right side Figure 3) of the at least one blade of the second ventilator (1b).

The first ventilator (1a) is positioned on an air intake opening side of the casing (2), and the second ventilator (1b) is positioned on an air exhaust opening side of the casing (2) as seen in Takahashi et al. Figure 1.

The apparatus according to claim 6, wherein the first and second ventilators (1a,b) each further comprise a rotation shaft (3), around which the blades rotate.

Radial mounting flanges (see examiners marked up Figure 3) constitute ribs attached to the casing (2), and the stator sleeve (shown not enumerated) constitutes a motor base fixed to the mounting rib. A bearing support (see examiners marked up Figure 3), having a tubular shape is anchored to the motor base. At least one bearing (see examiners marked up Figure 3) is supported by the bearing support, and a rotation shaft (5) is supported by an inner circumference of the at least one bearing.

The blades of each of the first and second ventilators (1a,b) rotate in the same direction.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to ventilation fans.

U.S. Pat. 6,517,326 B2 to Fujinaka et al. – teach a fan structure similar to the claimed invention.

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U.S. Pat. 5,007,241 to Saitou – teaches a fan structures with different numbers of blades.

U.S. Pat. 3,347,310 to Lind et al., 1,541,443 to Thelen, 2,325,222 to Bretzlaff et al. – teach a fan structures similar to the claimed invention with opposite pitch impellers.

U.S. Pat. 3,054,230 to Logue, 3,315,488 to Lind, 1,866,127 to Persons, and 5,984,649 to Kato et al. – teach a fan structures similar to the claimed invention, with plural fan members.

**Contact Information**

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (571) 272 4832. The examiner can normally be reached on M-F 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on (571) 272-4444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Emmanuel Sayoc  
Examiner  
Art Unit 3746

ECS



Timothy S. Thorpe  
Supervisory Patent Examiner  
Group 3700

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with Office Action

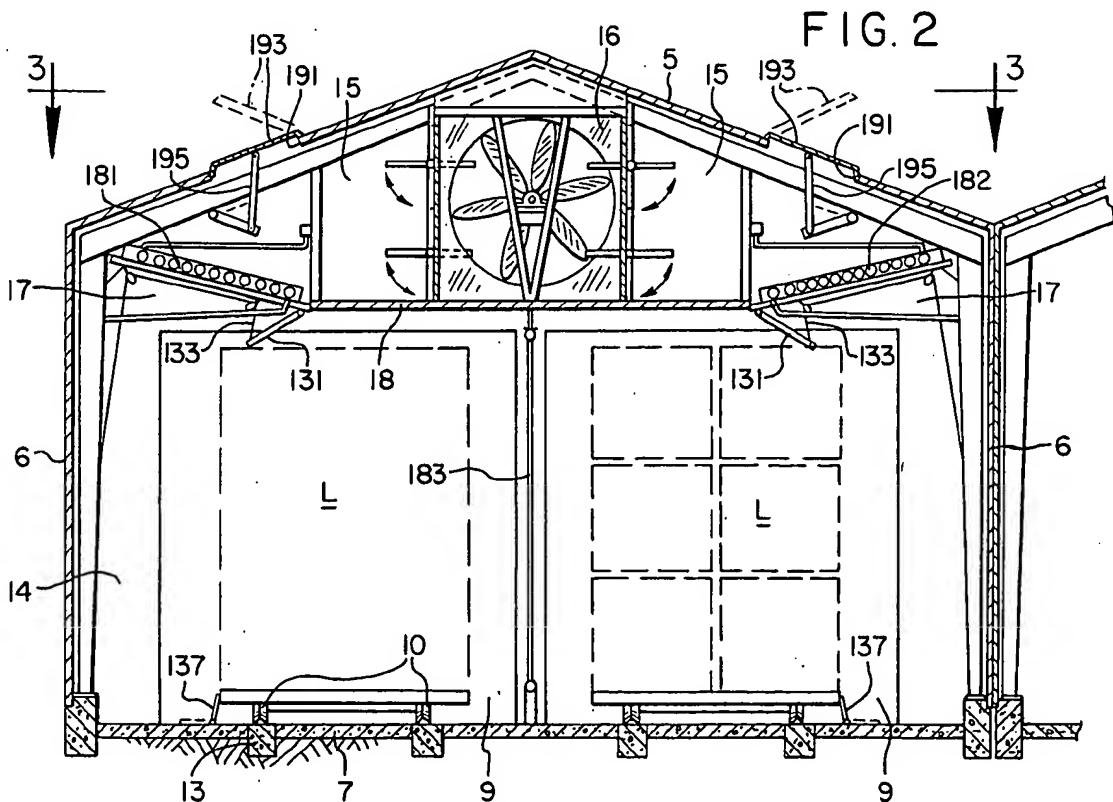
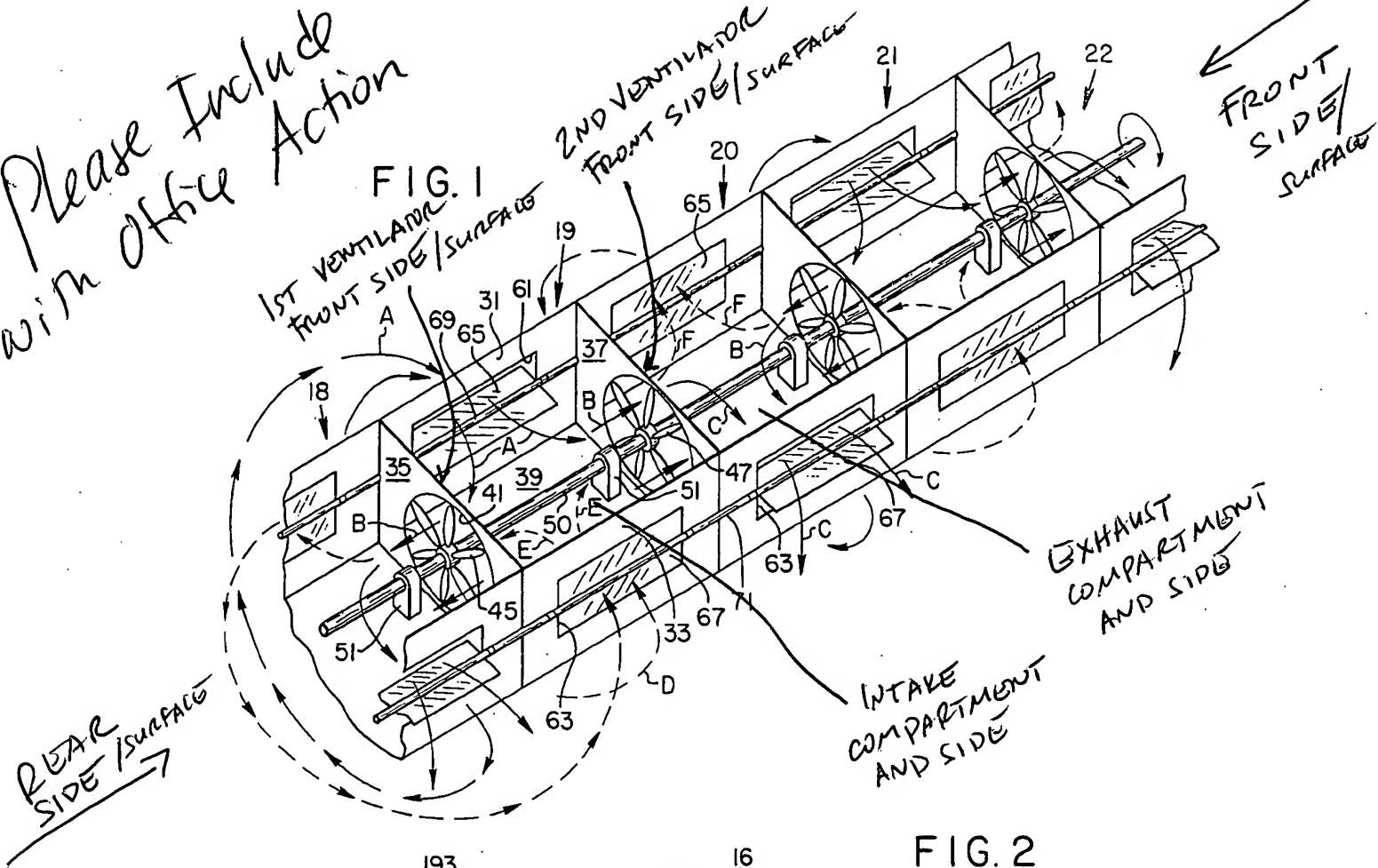


FIG. 3

